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AUTHOR Finegan, Jane E.
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ABSTRACT

Emotional intelligence has been defined as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (P. Salovey and J. Mayer, 1990). As a subset of social intelligence and of personal intelligences (H. Gardner, 1983), emotional intelligence involves a mental aptitude that assists in the cognitive processing of affect (J. Mayer and P. Salovey, 1993). Three studies are used to illustrate the concept of emotional intelligence and how it has been measured so far. These are: (1) a study of the ability to recognize the emotional content of visual stimuli conducted by J. Mayer, M. DiPaolo, and P. Salovey (1990) with 139 undergraduates; (2) a study of a measure of individual differences in the ability to attend to, clarify, and manage emotions by P. Salovey and others (1995) involving 86 subjects; and (3) a study of the accurate identification of emotion by J. Mayer and G. Geher (1996) with 40 participants. Implications for the impact of emotional intelligence on achievement, emotional well-being, and culture are discussed. (Contains 41 references.) (SLD)

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Measuring Emotional Intelligence: Where We Are Today

Jane E. Finegan

Texas A & M University

U.S. DEPARTMENT OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Jane Finegan

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Measuring Emotional Intelligence - Where We Are Today

Abstract

Emotional intelligence has been defined as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189). As a subset of social intelligence, and of personal intelligences (Gardner, 1983), emotional intelligence involves a mental aptitude that assists in the cognitive processing of affect (Mayer & Salovey, 1993). Three studies are used to illustrate the concept of emotional intelligence and how it has been measured thus far. In addition, implications for the impact of emotional intelligence on achievement, emotional well being, and culture are discussed.

Background

Nature of Intelligence

The psychological phenomenon of intelligence has been extensively researched throughout the past century. This could be due to the importance of intelligence in forming and preserving culture, as well as to the critical role intelligence serves within the study of psychology as a science. Intelligence has been defined in many ways, resulting in the basic idea that intelligence is composed of a broad set of abilities. Weschler (1958) defined intelligence as an individual's capacity to act purposefully, think rationally, and respond effectively to the environment. This definition encompasses the distinctions that have been made historically in the field of intelligence research, including Thorndike's distinctions among abstract, mechanical, and social intelligences (Thorndike, 1920), Cattell's theory of crystallized and fluid intelligence (Cattell, 1963), as well as more contemporary theories such as Gardner's personal intelligences (1983), and the theory that intelligence involves a common core of factors including problem-solving, verbal ability, and social competence (Sternberg, Conway, Detron, & Bernstein, 1981).

Cognition and Emotion

Various traditions in Western thought have also emerged in an effort to define intelligence and the connection that emotions have with cognitive processes (Salovey & Mayer, 1990). One mid-twentieth century tradition involves the idea that emotions cause "a complete loss of cerebral control", containing no "trace of conscious purpose" (Young, 1936, p. 457-458). However, also during the mid twentieth century, a tradition emerged which diverged from the existing theories about emotions and cognition. This tradition considered emotions as organizational responses that

focus and direct cognitive processes and motivate subsequent behavior (Easterbrook, 1959; Leeper, 1948). From this tradition, more modern theories developed based on the premise that emotions are organized responses which adaptively direct cognitive processes (Simon, 1982), and that these organized responses operate across many psychological subsystems (Salovey & Mayer, 1990).

John D. Mayer and Peter Salovey are widely recognized for developing a model of emotional intelligence. They have defined emotional intelligence as involving "the ability to perceive accurately, appraise, and express emotion; the ability to access and / or generate feelings when they facilitate thought, the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (Mayer & Salovey, 1997, p. 10). In addition, the concept of emotional intelligence is closely related to other theories which involve emotional identification, reasoning, and behavioral response to environmental stimuli, all which are included in Weschler's (1958) definition of the nature of intelligence.

Social Intelligence

Nature of Social Intelligence

Empirical studies in the area of affect and cognition have been conducted in an effort to measure social intelligence, identified by E. L. Thorndike (1920) as "the ability to understand and manage men and women, boys and girls--to act wisely in human relations" (p. 228). Thorndike suggested that social intelligence was distinct from the analytical and mechanical aspects of intelligence, and this conceptualization has endured throughout the rather precarious and often divergent research in the social intelligence field (Walker & Foley, 1973). Several problems have arisen in social intelligence research since Thorndike defined the construct. Among others, Mayer and Geher (1996) cited evidence that one problem lies in the difficulty in distinguishing the social

intelligences both theoretically (Mayer & Salovey, 1993), and empirically (Cronbach, 1960) from the other intelligences, including Spearman's (1927) "g" intelligence. Other problems have involved the development (or lack therof) of social intelligence instruments that yield valid scores, and most attempts to evaluate social intelligence have resulted in identifying an adult's ability to understand others, excluding the social behavioral aspect (Walker & Foley, 1973). Ford and Tisak (1983) suggested two possibilities for the difficulty in measuring social intelligence:

> Either social intelligence is a phenomenon distinct from academic or general intelligence, but no one has determine how to adequately conceptualize and/or measure it yet; or, we only think social intelligence is a distinct phenomenon, presumably because superficial differences in the content or context of social and academic tasks mask similarities. (p. 197)

Contemporary Studies

Researchers have recently revived their efforts to identify and measure social intelligence (Mayer & Geher, 1996), despite the issues that have been deterrents in expanding the field of study. For example, Legree (1995) suggested that a separate Social Insight factor uniquely exists within the theoretical model of psychometric g intelligence, which at the same time, substantially saturates the same g intelligence factor in second-order factor analysis. Legree stated that the "social insight construct correlates at about the same level with verbal and quantitative intelligence as verbal and quantitative intelligence correlate with each other" (p. 62).

Ford and Tisak (1983) suggested that behavioral outcomes more clearly illustrate the domain of social intelligence. They contended that the uniqueness of social intelligence is probably due more to learned patterns of organized behavior rather than basic cognitive processes, and that

these behavioral responses are situational specific, unlike cognitive processing skills that are much more generalizable across tasks. However, they stated that "the degree of overlap one finds between social and academic intelligence may depend greatly on the criteria one uses to evaluate social competence" (p. 204).

These studies conclude that while social intelligence can to a certain extent be differentiated from general intelligence, these two remain correlated. In both studies, the researchers implied that a set of skills or competencies grouped together within a certain domain or context will more accurately predict social effectiveness (Ford & Tisak, 1983) and performance activities requiring interpersonal skills (Legree, 1995).

Relatedly, Mayer and Geher (1996) brought up an interesting conjecture regarding further study to distinguish social intelligence from other intelligences. They contended that, rather than dropping the concept of social intelligence altogether, it may make sense to subdivide the construct into motivational and emotional intelligences. The motivational intelligences would involve understanding motivations and the tacit knowledge related to them (Wagner & Sternberg, 1985), as well as the goal-setting abilities related to motivations (Cantor & Kihlstrom, 1987). In contrast, the emotional intelligences would involve recognizing emotion, reasoning with emotional information, and processing emotion-related information as an aspect of general problem-solving ability (Salovey & Mayer, 1990).

Emotional Intelligence

Nature of Emotional Intelligence

Mayer and Salovey (1997) suggested that the concept of emotional intelligence combines a group of abilities that are more distinct than the social domain of general intelligence, but not so

distinct that they are separated from the intelligence triad. They contended that emotions and intelligence should connect in some way if the two meanings are to be preserved, and that "a low-to-moderate correlation is preferable to a nonexistent correlation; no correlation at all could suggest the new 'intelligence' is so different that it is not an intelligence at all" (p. 6). Because they have defined emotional intelligence as involving a series of mental abilities, it qualifies as a form of intelligence (Mayer & Salovey, 1993).

Emotional intelligence is a subset of both social intelligence and Gardner's (1983) personal intelligences, which he defines as the development of the internal person having the capacity to access and discriminate among a wide range of emotions and to "draw upon them as a means of understanding and guiding one's behavior" (p. 239). However, emotional intelligence excludes the general sense of self and appraisal of others and focuses on the ability to recognize and use "one s own and others' emotional states to solve problems and regulate behavior" (Salovey & Mayer, 1990, p. 189). Although emotional intelligence is considered by Salovey and Mayer to be related to the psychological tradition focusing on the social determinants of person perception, the tradition is different from the research on the interaction of affect and cognition because the focus is on the contributions of emotionality to personality. However, Mayer and Salovey (1995) cautioned that emotional intelligence must be distinguished from what are generally considered general personality traits such as extroversion, or nonintellectual talents such as skill at sports, because emotional intelligence involves actual abilities that require considerable cognitive processing rather than merely highly-valued ways of behaving.

Model of Emotional Intelligence

Mayer and Salovey (1997) have developed a model of emotional intelligence involving a

hierarchy of developmental stages, operating within and across the biological and cultural stages of growth. In the first stage, perception, appraisal, and expression of emotion, individuals first learn to identify emotions in their own physical states, move to identify emotions in other people and through external stimuli such as artistic works, then they learn to express emotions accurately along with the needs associated with them, and finally, discriminate between accurate and inaccurate expressions of feeling. The second level involves emotional facilitation of thinking. At this level, individuals are able to use emotions to prioritize thinking, use emotions as aids to judgment, attend to mood swings which encourage consideration of multiple points of view, and use emotional states to differentiate between specific problem-solving approaches. At the third level, individuals are able to understand and analyze emotions, and as a result, employ emotional knowledge. This level involves the ability to label emotions and recognize relationships among the emotions, interpret the meanings of emotions regarding relationships, the ability to understand complex emotions such as simultaneous feelings, and recognize likely transitions from one emotion to the next. Finally, the last level includes the reflective regulation of emotions to promote emotional and intellectual growth. This last stage in the hierarchy includes the ability to stay open to both negative and positive emotions, reflectively engage or detach from a particular emotion depending upon its usefulness to the individual's well being, reflectively monitor emotions in relation to self and others, and the ability to manage emotions in self and others by moderating behavior associated with the information they convey. Mayer and Salovey (1997) contend that these levels represent a set of abilities which reflect emotional intelligence, a set of abilities which are meaningfully different from general intelligence although correlated enough to the general intelligence construct to still qualify as an intelligence.

Measurement of Emotional Intelligence

Much of the work that has been conducted so far in the area of emotional intelligence involves scale development in areas such as emotional perception, emotional expression, empathy, and motivation, the constructs that underlie them, and the means by which they operationalize portions of what is thus far known as emotional intelligence (Salovey & Mayer, 1990). Theorists are interested in identifying the mental processes which involve emotional information, including appraising, expressing and regulating emotions in the self and others, and using emotions in adaptive ways. Mayer, Dipaolo, and Salovey (1990) suggested that "identifying the affective content of ambiguous stimuli may be one aspect of the ability to process incoming emotion-laden information" (p. 773), and may be related to the personality traits associated with emotional intelligence. In addition, Salovey, Mayer, Goldman, Turvey, and Palfai (1995) proposed that the skills involved in emotional intelligent individuals are likely related to the use of emotions to motivate, plan, and achieve in life. Mayer and Geher (1996) suggested that recent developments in the use of intelligence scales have led to the expansion of person perception research, including the personality domains related to emotional intelligence. They suggested that the ability to identify emotions from thoughts is central to the empirical measurement of emotional intelligence, and that the ability to reason about and know another person's emotions is related to other indicators of personality and emotional intelligence, such as empathy, openness, and general intelligence (Mayer & Geher, 1996).

Ambiguous Visual Stimuli - Study I

This study (Mayer, DiPaolo, and Salovey, 1990) was conducted in an effort to measure an individual's ability to recognize the emotional content of visual stimuli related to personality traits

associated with emotional intelligence. The study employed three criterion measures intended to measure empathy, alexithymia (i.e., inability to identify and describe feelings), and neuroticism. The researchers based their selection of criterion measures on previous theoretical positions, including (a) Mehrabian and Epstein's (1970) idea that one must be able to understand the emotions of a person in need before experiencing empathy; (b) the idea that people with alexithymia will have an impaired capacity to recognize emotion in visual stimuli, due to their extreme difficulty in recognizing and describing their own emotions (Taylor, 1984); and (c) Eysenck and Eysenck's (1968) definition of neuroticism which, according to Mayer and Salovey (1988), might be an important trait related to mood and emotional perception.

One hypothesis was concerned with the idea that the human emotional perceptual system can perceive and evaluate emotional content in facial patterns, novel colors, and novel designs. The second hypothesis was that such an ability would be related to certain personality characteristics such as knowing one's own emotions, accepting internal experience, expressing emotion, and empathy.

One hundred thirty-nine undergraduate students were recruited from a variety of departments including psychology, art, law, and engineering and were asked to respond to the emotional perception questionnaire (Ekman & Friesen, 1975) in part I of the study. This measure incorporated 18 visual stimuli consisting of 6 facial images, 6 colors, and 6 designs. Students then responded to three additional criterion measures in part II of the study. These included a 33-item scale measuring empathy (Mehrabian & Epstein, 1970), the Toronto Alexithymia Scale which is a 26-item, four-factor scale measuring alexithymia (Taylor, Ryan, & Bagby, 1985), and a brief form of the Eysenck Personality Inventory measuring neuroticism and extroversion (Eysenck, 1973).

The ability to perceive emotions viewed as present by group consensus along with the ability to consensually agree when emotion was not present was defined as consensus. A response was considered consensual if a participant responded within 1 scale point of the modal response on one of the six emotional scales (i.e., anger, happy, sad, fear, disgust, surprise) for an item. Three items which yielded modal responses indicating no emotion present across the six emotion scales were discarded, in order to maintain the balance between emotional and nonemotional scales. Range scores were calculated using the standard deviation for each participant's responses across items and indicated the range of a participant's responses. Amplitude scores indicated the amount of total emotion that each participant observed in the final stimuli, and were calculated as the mean scale responses across all items. Results of a principal components analysis indicated that consensus in emotional perception generalized across the three (face, design, color) stimulus domains. Coefficient alphas for each of the scores across the final 15 items measuring consensus were calculated. This analysis yielded reliability coefficients of .63 for consensus, .90 for range, and .94 for amplitude.

Pearson correlations between the emotion scores and the criterion variables (with n = 128) yielded the following results: (a) consensus scores were correlated with empathy, $r = .33$, $p < .001$, and with extroversion, $r = .15$, $p < .05$, (b) alexithymia was correlated with emotional range, $r = .16$ $p < .05$, and amplitude, $r = .20$, $p < .01$, and, (c) neuroticism was also correlated with range, $r = .23$ $p < .001$, and amplitude $r = .22$, $p < .01$. Results also indicated an intercorrelation of neuroticism with alexithymia, $r(128) = .34$, $p < .001$, so the similar correlations between these two emotion scores with amplitude and range was not surprising.

A core aspect of emotional intelligence is that the abilities involved in perceiving emotions in

a manner which is similar to the perceptions of other people, and the abilities to appraise and express emotions in order to use them for motivational purposes or for the purpose of making a decision, are related skills present in healthy people. An important finding from this study suggests that people display an ability to accurately predict consensual emotional content in novel stimuli, indicating that they in fact understand others' thought processes, or they understand general, universal rules for extracting emotion that extend beyond facial expression. The researchers hypothesized that a relationship would exist between emotional perception and the ability to introspect about emotions, but the relationship was not determined at the conclusion of the study. They suggested that many of the items measured on the alexithymia scale were related to poor understanding of emotions, known to correlate with sadness and depression (Mayer & Gaschke, 1988), and that the scale should be combined with the neuroticism scales as measures of distress rather than of emotional introspection. However, the results did suggest that "aspects of emotional intelligence appear to be abilities, in the traditional sense, that can be measured through the use of tasks" (p. 779). Therefore, individuals with difficulties in interpersonal relations might not suffer from attitude problems at all, but from deficits in actual abilities which can be assessed and ameliorated.

Emotional Attention, Clarity, and Repair - Study II

This study (Salovey et al., 1995) sought to describe a measure of individual differences in the ability to attend to, clarify, and manage emotions. The development of this measure was based upon the work of Mayer and Gaschke (1988), in which people demonstrated a continuous process associated with moods, whereby they reflected upon, monitored, evaluated, and regulated their feelings. This process they termed the meta-mood experience. Salovey et al. in turn developed the

Trait Meta-Mood Scale (TMMS), "designed to assess relatively stable individual differences in people's tendency to attend to their moods and emotions, discriminate clearly among them, and regulate them" (p. 127). Although they did not profess to have developed a type of emotional intelligence test, or to even believe that individuals should be differentiated according to emotional IQ, the researchers did suggest that the measure has utility in the identification of core differences that characterize emotional intelligence in individuals.

The trait meta-mood construct consisted of 48 items extracted from a larger item set employed by Mayer, Mamberg, and Volanth (1988) that represent five item domains including (a) clarity of emotional perception which represented the ability to understand one's mood, (b) strategies of emotional regulation involved the degree to which individuals moderate their moods, (c) integration of feelings which referred to questions about relationships between feelings and thoughts, (d) attention to emotions reflected the degree to which individuals notice and think about their emotions, and (e) attitudes about emotions which involved subjects' perceptions of the importance of emotional experiences.

Factor analysis resulted in a three-factor solution. These factors included attention to feelings, clarity of feelings, and mood repair. Three scales were then formed based on the factor analysis and yielded coefficient alphas of .86, .87, and .82, respectively, with a statistically significant interscale correlation between clarity and repair. The researchers used a shortened version of the original measure which yielded 30 items with comparable internal consistencies and interscale correlations.

A sample of 86 subjects completed the TMMS along with a variety of other measures, to determine convergent and discriminant validity. The authors argued that "given the stability of the

three-factor structure of the TMMS, it is important to determine (a) the extent to which these subsclaes are related to other measures of mood and mood management and (b) whether these subscales predict the actual regulation and control of mood" (p. 134). Therefore, they used measurement instruments related to the meta-mood experience. These included (a) the Ambivalence Over Emotional Expressiveness Questionnaire (AEQ; King & Emmons, 1990, 1991), which measures dissatisfaction with one's emotional expression among other thoughts, and is related to emotional expressiveness and to daily moods; (b) the Expectancies for Negative Mood Regulation (NMR; Kirsch, Mearns, & Catanzaro, 1990), which involves beliefs about the changeability of negative moods; (c) the Life Orientation Test (LOT; Scheier & Carver, 1985), which measures the tendency to have optimistic expectancies about future events, and (d) the Self-Consciousness Scale (SCS; Fenigstein, Scheier, & Buss, 1975), which measures the tendency to attend to aspects of ongoing consciousness and mood. The Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977) was also used as a measure of depression. The researchers reported that scores on each of the scales were reliable and valid, but not based on any singular theoretical perspective. However, other studies (Mayer & Gaschke, 1988; Mayer & Salovey, 1993; Salovey, Hsee, & Mayer, 1993; Salovey & Mayer, 1990) have produced evidence that the concepts involved in meta-mood experience and emotional intelligence can be used to organize the various constructs.

Some statistically significant correlations of the various measures are worth reporting. First, the internal consistencies for the attention, clarity, and repair scales were somewhat lower in this study, with alpha coefficients of .78, .80, and .62, respectively. The Repair scale was correlated positively with Attention, $r = .32$, $p < .01$, and Clarity, $r = .26$, $p < .05$. Despite the statistical

significance of these correlations, the researchers correctly reported that the magnitude of the correlations were not large. Another correlation included Attention with private and public self-consciousness, r = .42 and .36 respectively, indicating that people who attend to their feelings also attend to other aspects of their conscious experience. Also, Clarity was negatively correlated with ambivalence over expression, r = -.25, and depression, r = -.27, indicating that people who are clear about the emotions they are experiencing tend not to be depressed or experience ambivalence in the amount and quality of emotions they express to others. In addition, Repair was negatively correlated with depression, r = -.37, but positively correlated with optimism, r = .57, and beliefs about negative mood regulation, r = .53. The researchers suggested that the correlations between Repair and optimism and Repair and beliefs about negative mood regulation indicated a need for more research in the discriminant validity of beliefs about mood repairability from optimism and other similar constructs.

A principal components analysis was conducted in an effort to determine whether or not the collection of measures that have been generated in the area of meta-mood experience and used in the study would cluster along the three themes of attention, clarity, and repair, as expected. The three TMMS subscales and the scores on the additional measures served as items. Results from the analysis demonstrated that the three TMMS subscales defined the three different factors and accounted for 63% of the total variance. The first factor was defined by the TMMS Repair subscale and included Optimism (LOT), and Negative Mood Regulation (NMR); the factor structure coefficients were .76, .82, and .81, respectively. Depression (CES-D) was also included in the first factor, and not surprisingly, had a negative structure coefficient (-.65). The second factor was defined by the TMMS subscale Attention (.75) along with Private Self-Consciousness scale

(.78) and the Public Self-Consciousness Scale (.71). The third factor included the TMMS Clarity subscale on the positive end (.81) and the Ambivalence Over Emotional Expression on the negative end (-.70). Conclusions from the study indicated that "The TMMS subscales, Attention, Clarity, and Repair, seem efficiently to represent several existing measures concerned with the processing of affect. The measures included in this study could be organized empirically around the themes of attending to feelings, experiencing them clearly, and trying to regulate them" (p. 137).

Results of this study indicated that the TMMS is a reasonable construct of a variety of aspects of emotional intelligence (Mayer, DiPaolo, & Salovey, 1990; Mayer & Salovey, 1993; Salovey, Hsee, & Mayer, 1993; Salovey & Mayer, 1990). Individuals differ in their understanding and ability to express their own affective states and the affective states of others, and they vary in their ability to regulate emotions and use them to motivate behavior. As a result of the study, the researchers suggested that "Attention to, Clarity, and Repair of feelings seem fundamental to the self-regulatory domain of emotional intelligence" (p. 147). People who possess emotional intelligence abilities focus on the processes necessary to attend to feelings, experience them clearly, and repair their mood states.

Accurate Identification of Emotion - Study III

Mayer and Geher (1996) used methodology obtained from related studies on nonverbal emotion (Buck, 1984) and dyadic relationship research (Ickes, Stinson, Bissonette, & Garcia, 1990) in an effort to examine the accurate identification of emotion. Common to these studies include identifying the most accurate criteria for what an individual is feeling, identifying the best language with which to describe emotion, and identifying the personality variables related to the ability to identify emotion.

The researchers examined agreement level between target and group consensus as criteria for identification of emotion. However, correlations between target-observer agreement in other studies have only approached moderately low levels (Levenson & Ruef, 1992), or have been reported as "entirely nonsignificant" (Ickes et al., 1990, p. 735). Since the language used to identify emotion is dependent on an individual's distinct vocabulary associated with emotionality, the researchers sampled from diverse emotion-related lexicons, including cognitive, physiological sensations, pure emotion, and emotional management terms. This approach allowed participants to describe what they themselves were feeling, or what they believed someone else was feeling " in a standard but widely sampled set of emotion and closely emotion-related languages" (Mayer & Geher, 1996, p. 95).

The measure used for the first two aspects of this study was the Emotional Accuracy Research Scale (EARS), a performance scale developed by the researchers to examine an individual's accurate identification of another's emotions. In constructing the EARS, participants (n=40) were asked to provide a description of a situation about which they were thinking and to include the preceding events that led to the situation, a description of the situation itself, and what aspect of the situation brought about the participant's present feelings or mood. The participants then reported their mood on the Present Reaction Scale (PRS). Eight thought samples were extracted from the original 40, and 12 pairs of mood items were taken from the target person's responses on the PRS. When completing the EARS, participants judge the emotions of a target person experiencing particular thoughts in eight thought samples, and indicate which of the 12 alternatives within a given dichotomous item represents the emotion that the target felt more strongly.

Participants' judgments were evaluated according to four criteria, including target agreement, group consensus agreement, desirability agreement and pleasantness agreement. The target agreement score represented the number of times the participant's judgment agreed with the target person's mood response to the 96 items. The consensus agreement was a weighted sum representing the proportion of people with which the target agreed for each of the 96 items. Unweighted group consensus scores were also calculated and were similar to the weighted scores, however, weighted scores were used in the study because they possessed higher reliability. The two additional scores were checks for socioemotional bias, the desirability agreement score indicating the number of times the participant agreed with the socially desirable alternative in the pairs of items, and the pleasantess agreement score which indicated the number of times the participant agreed with the more pleasant alternative. Ten additional participants judged the item pairs to indicate which alternative could be considered more desirable, along with two raters employed to judge the item pair alternative which could be considered more pleasant. Alpha coefficients for the raters were .83 and .96, respectively.

In order to identify the personality dimensions associated with emotional intelligence, the study employed self-reported measures of empathy, defensiveness, and intelligence. The search for emotional identification correlates was based on Mayer and Salovey's (1995) theoretical premise that higher scores on empathy scales along with lower scores on defensiveness scales indicates that higher emotional intelligence tends to covary with greater internal openness, as well as to covary with higher scores on intelligence scales. Therefore, the study employed several self-report criterion scales potentially related to emotional intelligence.

The Present Reaction Scale (PRS) was used to measure mood (pleasant or unpleasant),

emotional openness, and empathic openness. This measure contained 78 mood items which represented six classes of terms relevant to pure emotion (e.g., mad or delighted), empathic reactions (e.g., scared for someone else), and mood management (e.g., pretend everything is okay). Scores on the pure emotion scale and the state empathy scale possessed alpha reliability coefficients of .68 and .61, respectively. The alpha coefficient for the mood management scale was .27 for this sample, and was not further analyzed in the study due to low reliability.

Empathy was measured using the Mehrabian and Epstein empathy scale (1972) which yields a single score of emotional responsiveness, and the Davis empathy scale which yields one measure each of empathic concern, fantasy, personal distress, and perspective taking. In addition, The Marlow-Crowne scale of social desirability (Crowne & Marlow, 1960) and the Kohn (1972) scale of authoritarianism were used as the measures of defensiveness. Self-reported SAT scores were used as the measure of intelligence. However, correlations between self-reported and actual SAT scores have ranged from .74 to .83 (Goldman, Flake, & Matheson, 1990), so the self-reported scores used in the study provided only a rough index of intellectual aptitude.

The first set of hypotheses of the study was concerned with accurate emotional responding, and included target and group-consensus criterion. The researchers expected there to be (a) some agreement between the target and group-consensus criteria, and (b) both target and group-consensus criteria would yield reliable variance independent of the social desirability or pleasantness set of emotional terms used within the EARS. The second set of hypotheses was concerned with performance at emotional identification. The researchers expected there to be (c) correlations between a participant's target agreement and group-consensus agreement with criterion measures of emotional intelligence, and (d) a participant's target and consensus agreement scores to have no

relationship with social desirability or pleasantness alternatives.

The study examined the target's report and the group consensus report as criteria for what a given target person is feeling. The alpha reliability for the group consensus score was based on 35 of the 321 participants and was .92. Application of the correction of attenuation calculated for all 321 participants yielded an estimated r = .50. Internal consistency could not be computed for each individual's target report because different item sets were used to represent each target's responses on the EARS. However, the target's reports did correlate with the social desirability of the item, r = .27, $p < .01$, which indicates some reliability in the target reports must exist.

The correlation coefficient obtained from examining target and group consensus agreement as to what the target person was feeling was very low, r = .18. Given that the target's responses should be just as reliable as an individual member of the consensus group, they should have correlated at least r = .50 with the consensus criterion. Two hypotheses were developed beyond low target reliability concerning the divergence in target and group consensus. These included the hypothesis that only some of the targets were competent at reporting their emotions. However, if this were the case, greater consensus agreement would be obtained for only some targets. A one-way analysis of variance yielded a non-significant F = .73, indicating that no particular targets were more inexplicable than others. A second hypothesis considered the idea that certain types of responses were more likely to be given by targets than by observers, due to the strategies employed in reporting what the person felt. Results from a z test indicated that more desirable alternatives were chosen by the targets than the group consensus (64% vs. 43%, $z = 2.9$, $p < .01$), and more pleasant alternatives were also chosen by the targets (57% vs. 42%; $z = 2.3$, $p < .01$). These results indicate that the targets may be more sensitive to what others would think of them.

The study was constructed on a central hypothesis that participants having higher target and consensus agreement scores would have higher openness profiles and higher indications of intelligence on the criterion measures. Target and consensus agreement scores did correlate positively with measures of empathy and negatively with measures of defensiveness. Agreement with the target correlated with Epstein-Mehrabian empathy and with the Davis Empathic Concern and Fantasy subscales ($r = .13, .16$, and $.11$, p's $< .05$), as did agreement with the group consensus on the same scales ($r = .24, .13, .23$ p's $= < .05$).

Results from the subsample that was requested to complete the Kohn's Authoritarian-Rebellion scale and the Marlowe-Crowne social desirability scale indicated somewhat of a negative correlation ($r = -.14$, $p < .10$) with consensus agreement scores, which was expected since the two scales are associated with defensiveness. For the subsample that was requested to report SAT scores ($n = 92$), a positive correlation was found between Consensus Agreement and SAT scores, ($r = .26$, $p < .01$), but SAT scores were unrelated to Epstein-Mehrabian empathy ($r = .04$, ns) and unrelated to the Davis Empathic Concern and Fantasy subscales ($r = .06$ and $.08$, ns). In addition, Mayer and Geher found that the correlation between weighted consensus and Epstein-Mehrabian empathy was lower than that of the whole group ($r(79) = .07$ vs. $r(321) = .24$, $p < .01$), but increased to $r = .14$, $p < .1$ when the influence of SAT scores was removed. These findings indicate that empathic and intelligence predictions are independent of each other as constructs of emotional intelligence.

Finally, a multiple regression analysis, which included measures of empathy, defensiveness, and intelligence as predictors of consensus agreement, yielded an $R = .31$, $F(6, 151) = 2.77$, $p < .05$. However, the amount of variance explained in the multiple regression analysis using the same

predictors and the less reliable target agreement as the dependent variable yielded an $R = .19$, $F(6, 151) = .98$, ns.

Mayer and Geher suggested that the ability to identify emotions in thoughts is central to an individual's emotional well-being, although this may at times take considerable perspective taking. They contended that the ability to predict emotions from thought will invariably give an individual a social advantage in certain life tasks and professions which require emotional intelligence. These professions include psychotherapy, teaching, and certain business careers which require a high level of competency in interpersonal skills. In addition, they predicted that such individuals will have better, more long term intimate relationships as well as better work histories within their occupations. The researchers concluded that future work is warranted to further assess the implications of these predictions, and how the findings might be applied to the learning process necessary to make significant gains in interpersonal relations. However, they suggested that, if these predictions are accurate, it may be possible to train people to recognize the emotions in others, apply this knowledge to social situations, and increase emotional well-being and the quality of interpersonal relationships, results which are comparable to those of Mayer, DiPaolo, and Salovey (1990).

Discussion

Possessing the abilities, or even some of the abilities, of emotional intelligence can lead to achievement from the formal education years of the child and adolescent to the adult's competency in being effective in the workplace and in society. The ability to assess one's own and another's emotions and to use these processes in behaviorally adaptive ways express the critical aspects of motivation and emotional intelligence. Although Mayer and Geher (1996) suggested that

motivation and emotional intelligence are contrasting in nature, an individual must possess the emotional-information processing abilities as well as mental aptitudes in order to solve problems. These abilities in turn help individuals decide upon options for motivating themselves to achieve. Goleman (1995) suggested that emotionally intelligent individuals are more likely to be productive and effective in any endeavor they undertake.

Questions remain regarding the paradigm to be used in teaching emotional intelligence skills as a part of the general curricula. Mayer and Salovey (1997) suggested that there is no solution to this dilemma as yet, primarily because emotional intelligence is ingrained in an individual's cultural norms. However, they suggested that some conflict resolution programs that schools have employed throughout the nation help children learn the abilities underlying emotional intelligence. This is due to the nature of the programs, in which students are taught to think about their own emotions, think about another's emotions, verbalize what it might be that the other person is feeling and thinking, and come to some agreement as to how the situation can be resolved based on mutual understanding of perspective. In conveying a message about emotional intelligence that illustrates its complexity in achievement, Mayer and Salovey (1997) stated:

> More emotionally intelligent individuals might succeed at making their workers feel better, at communicating in interesting ways, and at designing projects that involve infusing products with feelings and aesthetics. Emotional intelligence may make the difference between constructing the Brooklyn Bridge, with its renowned beauty, and the more mundane Fifty-ninth Street Bridge. (p.18)

Goleman (1995) asserted some alarming statistics regarding America's youth and their everyday behavior. These include an increase in withdrawal from social relationships, depression,

loneliness, and anxiety. In addition, children in school express other emotionally related behaviors such as inability to concentrate or to regulate thoughts, being mean and aggressive toward others, and destroying property.

Goleman suggested that the skills and abilities that emotional intelligence encompass can be called the "character" of an individual, inevitably connected with morality and self-discipline. Implicitly true, although not empirically derived, the ability to exercise empathy leads to a higher level of understanding and tolerance in a global society. Possessing the ability to communicate cross-culturally with the understanding of cultural nuances and protocols will be critical to the growth of our society into the twenty-first century. As Goleman insightfully stated, the components of emotional intelligence are "the basic arts of democracy" (p. 285).

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